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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/605,227

06/28/2000

Yutaka Kuba

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02/28/2003

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EXAMINER

PAK, SUNG H

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 02/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Bn

Office Action Summary

Application No.

09/605,227

Applicant(s)

KUBA, YUTAKA

Examiner

Sung H. Pak

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

In response to a request for continued examination, all the pending claims have been carefully reconsidered in light of the amendment and the applicant's arguments presented in the response filed 11/21/2002. However, the claims are still deemed unpatentable, and a new ground of rejection is presented in this office action. Please see Remarks for details.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/21/2002 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Miura et al (US 5,748,822).

Miura et al was cited in the prior office action.

Miura et al discloses an optical module with all the limitations set forth in the claims, including: a substrate having a groove in a planar main surface of the substrate (Fig. 13A, Fig. 13B, column 12 lines 9-11); an electric connection terminal provided on the substrate (Fig. 13E, Figs. 4A-4C); an optical element provided on the substrate, the optical element being connected with the electric connection terminal (Fig. 13E, column 12 lines 37-41); at least a portion of the light transmitter fixed in the groove and optical coupled with the optical element (Fig. 13E).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beckwith (US 5,615,292) in view of Miura et al (US 5,748,822).

Beckwith was cited in the prior office action.

Regarding claims 1-4, 7-11, 13-16, Beckwith discloses a fiber optic terminator module with all the limitations set forth in the claims, except it does not teach the use of substrates having grooves and at least a portion of the optical device disposed in the groove. Beckwith teaches the use of fiber holding portion on one end of the optical

packaging and a free-standing optical devices mounted on the substrate for coupling optical fibers and optical devices (Fig. 4b).

Specifically, Beckwith discloses: first and second substrates, the first substrate having an electrical connection terminals ("6" in Figs. 3, 4b); the second substrate having an optical receiver, optical transmitter and optical signal processing circuits ("9,10,11,12" in Fig. 4b); ends of optical fibers being fixed onto the substrate aligned with the optical transmitter and receiver (Fig. 4b); protector cover formed for protecting optical components (Fig. 1 and column 2 lines 31-41); a connector adapted for mating with the electrical connection terminal having a reception space having a spring connection arrangement that leads to the electric circuit board ("7" in Fig. 4b).

Miura et al, on the other hand, explicitly teaches the use of optical packaging substrates with v-grooves for mating optical fibers with optical transceiver devices and disposing at least a portion of the optical devices in a substrate groove (Fig. 13A). Such use of substrate grooves for optical packaging is commonly used in the art, and it is advantageous over the prior art devices because it provides an accurate alignment between the optical fibers and optical devices. Improved alignment minimizes optical coupling loss and improves the system performance. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Beckwith device to have grooves on the substrate.

Regarding claims 5-6, Beckwith discloses a fiber optic connector module with all the limitations set forth in the claims, as discussed above, except it does not teach the

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use of planar waveguide circuit. However, such planar waveguide circuit is well known and commonly used in the art. Such planar waveguide circuits provide a well known advantage of being compact and energy efficient. Therefore, it would have been obvious to a person of ordinary skill in the art to modify Beckwith device to have planar waveguide circuit. It would have been desirable to have a compact and energy efficient optical circuit.

Regarding claims 12 and 17, Beck with discloses a fiber optic connector module with all the limitations set forth in the claims, as discussed above, except it does not teach the use of connector body being made of a material having a thermal conductivity higher than the first base member. However, such casing material is well known and commonly used in the art. It provides a well known advantage of providing an effective means for heat sink. Therefore, it would have been obvious to a person of ordinary skill in the art to modify Beckwith device to have the connector body made of a material having a higher thermal conductivity. It would have been desirable to have a connector with effective heat sink means.

Remarks

Amended Limitations:

The claims are now amended to recite a substrate having "a planar main surface", in which the grooves are formed thereon and the optical element is provided thereon. All the pending claims have been carefully reconsidered in light of this newly added limitation.

Claim rejection under 35 USC 102 by Miura:

Starting on page 3 of the applicant's response, it is argued that Miura reference, as applied in the rejection, does not teach the use of a substrate having a planar main surface and both fiber guiding grooves and optical element being mounted on the planar main surface (pages 3-4). The applicant further points out that Miura reference, instead shows an optical element disposed in the "recess" formed on the substrate.

The examiner respectfully points out that the recess formed on the substrate is not a critical element of the invention taught by Miura, and further points out that the use of a substrate that does not have a recess is still anticipated by the reference. As discussed in the rejection, Figs. 13A, 13G, and 13E combined with Figs. 4A-4C of Miura reference explicitly teach the embodiments of the invention that use planar main surface without any recess other than fiber grooves. Therefore, additional embodiments of Miura reference fully anticipates the claimed limitations recited in claim 1.

Claim rejection under 35 USC 103 by Beckwith in view of Miura:

Starting on page 6 of the applicant's response, it is argued that combination of Beckwith and Miura references do not teach or suggest the optical module having a substrate having a planar main surface. It is further argued that Beckwith reference does not teach a substrate having a planar main surface.

As discussed in detail above, Miura reference does teach the use of a substrate having a planar main surface, further comprising fiber grooves formed on the planar surface, and optical device disposed on the substrate. Therefore the combination of Beckwith in view of Miura does teach the claimed limitations and renders the pending claims obvious. The rejection based on 35 USC 103 is still proper.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (703) 308-4880. The examiner can normally be reached on Monday - Thursday : 6:30am-5:00pm.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

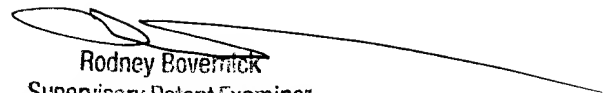
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Sung H. Pak
Examiner
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